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E30-048 (00123)

IN THE CLAIMS

Please cancel claims 1 through 27 and insert claims 28 through 45 as follows:

28 (new). A method for reconfiguring, from an original

configuration to a new configuration, a striped logical device distributed across a plurality of physical disk drives in a disk array storage device and responsive to input-output requests from a host application wherein the disk array storage device includes means for making a copy of the striped logical device in the original configuration concurrently with operations between the host application and the logical device in its original configuration and means for isolating the copy, said method being characterized by including the steps of:

- A) converting the logical device to its new configuration whereby the host application thereafter can interact with the logical device in its new configuration,
- B) transferring data from the isolated copy to corresponding locations according to the new configuration concurrently with operations between the host application and the logical device in its new configuration, and

25 C) responding to an input-output request from the host application for non-transferred data according to the new configuration by transferring data from a corresponding location in the copy to location in the logical device identified by the input-output request.

29 (new). A method as recited in claim 28 wherein the data processing system includes other physical disk drives and wherein said method is further characterized by including, during copying the steps of:

- 5 i) generating for the logical device a first list of all data locations on the physical disk drives according to the original configuration, and
- 10 ii) replicating the data in the logical device onto the other physical disk devices according to the original configuration.

30 (new). A method as recited in claim 29 wherein said step of converting the logical device to its new configuration includes:

- 5 i) generating a second list of all data locations on the physical disk drives that are to receive

data from the original configuration according  
to the new configuration, and

- ii) generating the new configuration whereby host  
requests are directed to the storage locations  
as established by the second configuration.

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31 (new). A method as recited in claim 30 wherein said  
transferring step includes iteratively transferring data  
from the other physical disk drives containing the  
replicated data to a corresponding physical disk drive  
location according to the original configuration and  
information in the first list.

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32 (new). A method as recited in claim 31 wherein said response  
to an input-output request includes transferring the data  
according to the second configuration and information on  
the second list.

33 (new). A method as recited in claim 28 wherein the data  
processing system includes other physical disk drives and  
wherein the method is further characterized by  
A) generating, during said data copying, for the logical  
device a first list of all data locations on the  
physical disk drives according to the original  
configuration and replicating the data in the logical

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device onto the other physical disk devices according to the original configuration; and

10 B) generating, during said conversion, a second list of all data locations on the physical disk drives that are to receive data from the original configuration according to the new configuration and generating the new configuration whereby host requests are directed  
15 to the storage locations as established by the second configuration, and

C) iteratively transferring data from the other physical disk drives containing the replicated data to a corresponding physical disk drive location according  
20 to the original configuration and information in the first list during said data copy, and

D) transferring the data according to the second configuration and information on the second list during said response to an input output request.

34 (new). A method as recited in claim 33 wherein the disk array storage device includes a cache memory for storing data from the host application temporarily before transfer to a physical disk drive, said method being further  
5 characterized by the steps of:

- A) generating a third list of all data in the cache memory to be transferred to the physical disk drives when said conversion occurs, and
- B) transferring the data from the cache memory to the replicated data according to its first configuration data location and in response to the third list.

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35 (new). A method as recited in claim 34 wherein a different process controls each of said transferring steps and said processes operate concurrently.

36 (new). A method as recited in claim 34 wherein a different process controls each of said transferring steps and wherein said processes operate concurrently and independently of the operation of the host application.

37 (new). In a disk array storage device having a striped logical device distributed across a plurality of physical disk drives in an original configuration wherein the disk array storage device includes copying means for making a copy of the striped logical device in the original configuration concurrently with and transparently to the processing of input-output requests from a host application and means for isolating the copy, said disk array storage device being enabled to reconfigure the

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10 striped logical device and being characterized by  
comprising:

- 15 A) a converter that converts the logical device to its  
new configuration whereby the host application  
thereafter can interact with the logical device in  
its new configuration,
- 20 B) a first transfer module that transfers data from the  
isolated copy to corresponding locations according to  
the new configuration concurrently with operations  
between the host application and the logical device  
in its new configuration, and
- 25 C) a second transfer module that responds to an input-  
output request from the host application for non-  
transferred data according to the new configuration  
by transferring data from a corresponding location in  
the copy to location in the logical device identified  
by the input-output request.

38 (new). A disk array storage device as recited in claim 37  
additionally includes other physical disk drives and  
wherein said disk array storage device is further  
characterized by said copying means a first list of all  
5 data locations on the physical disk drives according to  
the original configuration in said copying means whereby  
said copy means is enabled to replicate the data in the

logical device onto the other physical disk devices  
according to the original configuration.

39 (new). A disk array storage device as recited in claim 38  
wherein said converter includes a second list of all data  
locations on the physical disk drives that are to receive  
data from the original configuration according to the new  
5 configuration, said conversion means generating the new  
configuration whereby host requests are directed to the  
storage locations as established by the second  
configuration.

40 (new). A disk array storage device as recited in claim 39  
wherein said first transfer means includes means for  
iteratively transferring data from the other physical disk  
drives containing the replicated data to a corresponding  
5 physical disk drive location according to the original  
configuration and information in said first list.

41 (new). A disk array storage device as recited in claim 40  
wherein said second transfer means includes means  
responsive to information on said second list.

42 (new). A disk array storage device as recited in claim 37  
additionally including other physical disk drives further  
characterized by comprising:

- A) a first list of all data locations on the physical  
5 disk drives according to the original configuration  
in said copying means,
- B) said converter includes a second list of all data  
locations on the physical disk drives that are to  
receive data from the original configuration  
10 according to the new configuration,
- C) said first transfer module includes a module for  
iteratively transferring data from the other physical  
disk drives to a corresponding physical disk drive  
location according to the new configuration in  
15 response to information in said first list, and
- D) said second transfer module includes means responsive  
to information on said second list.

43 (new). A disk array storage device as recited in claim 42  
wherein the disk array storage device includes a cache  
memory for storing data from the host application  
temporarily before transfer to a physical disk drive, and  
5 wherein said disk array storage device is further  
characterized by:



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- A) a third list of all data in the cache memory to be transferred to the physical disk drives, and
- B) a third transfer module for transferring the data from the cache memory to the replicated data according to its first configuration data location and information in said third list.

44 (new). A disk array storage device as recited in claim 43 wherein said copying means and said first, second and third transfer modules operate concurrently.

45 (new). A method as recited in claim 43 wherein said copying means and said first, second and third transfer modules operate concurrently with each other and operate concurrently and independently of a host application.